WHAT IS CLAIMED is:

1. A semiconductor substrate comprising:

a lightly doped substrate that contains impurities at a low concentration;

a heavily doped diffusion layer which is formed over a top of the lightly doped substrate and is higher in impurity concentration than the lightly doped substrate; and

an epitaxial layer which is formed over a top of the heavily doped diffusion layer and contains impurities at a lower concentration than the heavily doped diffusion layer.

2. A semiconductor substrate according to claim 1, wherein the impurities contained in the lightly doped substrate is phosphorous or boron.

3. A semiconductor substrate according to claim 2, wherein a resistance of the epitaxial layer is 10 Ωcm or less.

4. A semiconductor substrate according to claim 2, wherein the lightly doped substrate, the heavily doped diffusion layer, and the epitaxial layer are of the same conductivity type.

5. A semiconductor substrate according to claim 2, wherein the lightly doped substrate and the heavily doped diffusion layer are of a first conductivity type, and the epitaxial layer is of a second conductivity type.

6. A method of manufacturing a semiconductor substrate comprising:

forming, on a surface of a lightly doped substrate that contains impurities at a low concentration, a heavily doped diffusion layer which is higher in impurity concentration than the lightly doped substrate;

mirror finishing a surface of the heavily doped diffusion layer; and

forming an epitaxial layer on the surface mirror finished of the heavily doped diffusion layer, the epitaxial layer containing impurities at a lower concentration than the heavily doped diffusion layer.

7. A method of manufacturing a semiconductor substrate comprising:

mirror finishing a surface of a lightly doped substrate that contains impurities at a low concentration;

forming, on the surface mirror finished of the lightly doped substrate, a heavily doped diffusion layer which is higher in impurity concentration than the lightly doped substrate; and

forming an epitaxial layer on a surface of the heavily doped diffusion layer, the epitaxial layer containing impurities at a lower concentration than the heavily doped diffusion layer.

8. A method of manufacturing a semiconductor

substrate comprising:

forming, on top and back of a lightly doped substrate that contains impurities at a low concentration, heavily doped diffusion layers which are higher in impurity concentration than the lightly doped substrate;

removing the heavily doped diffusion layer which is formed on one of the top and back of the lightly doped substrate;

mirror finishing a surface of the heavily doped diffusion layer which is formed on the other of the top and back of the lightly doped substrate; and

forming an epitaxial layer on the surface mirror finished of the heavily doped diffusion layer, the epitaxial layer containing impurities at a lower concentration than the heavily doped diffusion layer.

9. A method of manufacturing a semiconductor substrate comprising:

forming, on the top and the back of a lightly doped substrate that contains impurities at a low concentration, heavily doped diffusion layers which are higher in impurity concentration than the lightly doped substrate;

dividing the substrate into divided substrates by cutting it along a surface thereof at a center in a thickness direction;

planarizing a cut surface of each of the divided

substrates;

mirror finishing a surface of the heavily doped diffusion layer which is formed on each of the divided substrates; and

forming an epitaxial layer on the surface mirror finished of the heavily doped diffusion layer on each of the divided substrates, the epitaxial layer containing impurities at a lower concentration than the heavily doped diffusion layers.

10. A semiconductor substrate comprising:

a heavily doped diffusion layer which is formed over a top of a lightly doped substrate and is higher in impurity concentration than the lightly doped substrate, the lightly doped substrate being removed at a final stage of a process; and

an epitaxial layer which is formed over a top of the heavily doped diffusion layer and contains impurities at a lower concentration than the heavily doped diffusion layer, wherein an impurity diffusion layer for forming a semiconductor device is formed in the epitaxial layer.

11. A semiconductor substrate according to claim 10, wherein a resistance of the epitaxial layer is 10 $\Omega$cm or less.

12. A semiconductor substrate according to claim 10, wherein the lightly doped substrate, the heavily doped diffusion layer, and the epitaxial layer

are of the same conductivity type.

13. A semiconductor substrate according to claim 10, wherein the lightly doped substrate and the heavily doped diffusion layer are of a first conductivity type, and the epitaxial layer is of a second conductivity type.

14. A method of manufacturing a semiconductor substrate according to claim 6, wherein the method further comprises forming in the epitaxial layer an impurity diffusion layer for forming a semiconductor device, and removing the lightly doped substrate at a final stage of a process of forming the semiconductor substrate.

15. A method of manufacturing a semiconductor substrate according to claim 7, wherein the method further comprises forming in the epitaxial layer an impurity diffusion layer for forming a semiconductor device, and removing the lightly doped substrate at a final stage of a process of forming the semiconductor substrate.

16. A method of manufacturing a semiconductor substrate according to claim 8, wherein the method further comprises forming in the epitaxial layer an impurity diffusion layer for forming a semiconductor device, and removing the lightly doped substrate at a final stage of a process of forming the semiconductor substrate.

17. A method of manufacturing a semiconductor substrate according to claim 9, wherein the method further comprises forming in the epitaxial layer an impurity diffusion layer for forming a semiconductor device, and removing the lightly doped substrate at a final stage of a process of forming the semiconductor substrate.